ELSEVIER

Volume 151, Issues 1–3, 1 September 2004

Journal of
Materials
Processing
Technology

www.elsevier.com/locate/jmatprotec

Contents

Preface 1
X.B. Zhou

Laser and forming technology—an idea and the way of implementation 3
M. Geiger, M. Merklein, M. Pitz

Progress in large vessel forming: introduction of some innovations of Prof. Z.R. Wang. 12
S.J. Yuan, B.G. Teng, X.Y. Dong, R.W. Wang

Mechanical processing of Ag/BSCCO high temperature superconductor tape 18
N. Bay, M.S. Nielsen

Uniform principle on stress, strain and yield locus for analysing metal forming processes: the contribution of Prof. Z.R. Wang . . 27
W.L. Hu, Z.B. He, Y. Fang

A novel approach to determine the kinetics for dynamic recrystallization by using the flow curve 33
A. Yanagida, J. Yanagimoto

Some new features in the development of metal forming technology 39
S.H. Zhang, Z.R. Wang, Z.T. Wang, Y. Xu, K.B. Chen

Numerical modeling of the multi-stage sheet pair hydroforming process 48
T.J. Kim, D.Y. Yang, S.S. Han

Research on the controlling of the thickness distribution in superplastic forming 54
K.F. Zhang, G.F. Wang, D.Z. Wu, Z.R. Wang

Numerical modelling and simulation in sheet metal forming 58
M. Tisza

Some advanced plastic processing technologies and their numerical simulation 63
H. Yang, M. Zhan, Y.L. Liu, F.J. Xian, Z.C. Sun, Y. Lin, X.G. Zhang

State of the art in micro forming and investigations into micro deep drawing 70
F. Vollertsen, Z. Hu, H. Schulze Niehoff, C. Theiler

Viscous pressure forming (VPF): state-of-the-art and future trends 80
Z.J. Wang, J.G. Liu, X.Y. Wang, Z.Y. Hu, B. Guo

An efficient pseudo-inverse approach for damage modeling in the sheet forming process 88
Y.Q. Guo, Y.M. Li, F. Bogard, K. Debray

Study on intelligent control technology for the deep drawing of an axi-symmetric shell part 98
J. Zhao, H.Q. Cao, L.X. Ma, F.Q. Wang, S.B. Li

Study of the new floating-plug drawing process of thin-walled tubes 105
K. Świątkowski, R. Hatalak

Study on model of metal structure refinement during hot deformation. 115
X.P. Ren, Z.R. Wang

The publisher encourages the submission of articles in electronic form thus saving time and avoiding rekeying errors. A leaflet describing our requirements is available from the publisher upon request.

CONTENTS Direct

This journal is part of **ContentsDirect**, the ***free*** alerting service which sends tables of contents by e-mail for Elsevier books and journals. You can register for **ContentsDirect** online at: **http://contentsdirect.elsevier.com**

Elsevier B.V.

Universal formability technology and applications 119
Y. Xu

Neural network modeling and optimization of semi-solid extrusion for aluminum matrix composites 126
H.J. Li, L.H. Qi, H.M. Han, L.J. Guo

Wrinkling behavior of laminated steel sheets 133
H.S. Cheng, J. Cao, H. Yao, S.D. Liu, B. Kinsey

Bake-hardening behavior of cold-rolled CMnSi and CMnSiCu TRIP-aided steel sheets 141
Z.C. Wang, S.J. Kim, C.G. Lee, T.H. Lee

Automated sequence design for slab stretching with arbitrary height distribution using one-step FEM analysis 146
R. Aivazi, J. Yanagimoto

Structure evolution and compressive behavior of semi-solid Al–Si hypoeutectic alloy with re-melting heat treatment 155
H.L. Yang, Z.L. Zhang, I. Ohnaka

Hydroforming highlights: sheet hydroforming and tube hydroforming 165
L.H. Lang, Z.R. Wang, D.C. Kang, S.J. Yuan, S.H. Zhang, J. Danckert, K.B. Nielsen

Explanation of the mushroom effect in the rotary forging of a cylinder 178
G. Liu, S.J. Yuan, Z.R. Wang, D.C. Zhou

Blank optimization in sheet metal forming using an evolutionary algorithm 183
H. Naceur, Y.Q. Guo, J.L. Batoz

A review of developments in the forging of connecting rods in China 192
Q. Wang, F. He

Recent development in the mechanics of superplasticity and its applications 196
H.L. Xing, C.W. Wang, K.F. Zhang, Z.R. Wang

Hydroforming of typical hollow components 203
S.J. Yuan, G. Liu, X.R. Huang, X.S. Wang, W.C. Xie, Z.R. Wang

An FE simulation and optimisation approach for the forging of aeroengine components 208
H. Ou, J. Lan, C.G. Armstrong, M.A. Price

Sensitive factors in springback simulation for sheet metal forming 217
W.L. Xu, C.H. Ma, C.H. Li, W.J. Feng

Tribological approaches for green metal forming 223
Z.G. Wang

Research on the precision bending of a workpiece with a complicated cross-section for manufacturing a large flange 228
B.G. Teng, Z.R. Wang, G.Q. Dong, J.Q. Shen

Evaluation of change in material properties due to plastic deformation 232
M. Yang, Y. Akiyama, T. Sasaki

Recent developments in sheet hydroforming technology 237
S.H. Zhang, Z.R. Wang, Y. Xu, Z.T. Wang, L.X. Zhou

Finite element modelling of mixed film lubrication in cold strip rolling 242
Z.Y. Jiang, A.K. Tieu, X.M. Zhang

Forming characteristics and mechanical parameter sensitivity study on pre-phosphated electro-galvanized sheet steel 248
H.M. Jiang, X.P. Chen, H. Wu, C.H. Li

Finite element analysis of the prestress wire-winding press 255
Y.H. Song, Y.N. Yan, R.J. Zhang

Phase and structural changes of $Nd_{12}Fe_{82}B_6$ alloy during mechanical milling in both an argon and a hydrogen atmosphere 258
G. Shi, L.X. Hu, B. Guo, E.D. Wang, Z.R. Wang

Development of the CAE-assisted nano-indentation method for the evaluation of the anisotropic mechanical-properties of thin films 263
T. Sasaki, M. Yang, S. Fukushima, R. Tsukano

Mechanical and fracture behavior of bainitic rail steel 268
H.A. Aglan, Z.Y. Liu, M.F. Hassan

Deformation analyses of the integrated hydro-bulge forming of a spheroidal vessel from different preform types 275
W. Hu, Z.R. Wang

A preform design method for sheet superplastic bulging with finite element modeling 284
H.L. Xing, K.F. Zhang, Z.R. Wang

Study on precision forging technology for a complex-shaped light alloy forging 289
D.B. Shan, W.C. Xu, Y. Lu

FEM analysis of tube pre-bending and hydroforming 294
L. Gao, M. Strano

Study of the preparation of Al_2O_{3sf}-SiC_p/Al composites and their wear-resisting properties 298
Z.M. Du, J.P. Li

The effect of backward extrusion on the whisker morphology of SiC_w/6061Al. 302
J.H. Li, C.F. Li

Research on the relationship between the number of rotary draw bendings and the shape precision of a bent hat-section profile . . . 307
Y. Dong, Y.Y. Yang, L.H. Zhao

A study of the bulge-forming of polycarbonate (PC) sheet. 312
Z.X. Hou, J. Wu, Z.R. Wang

Numerical simulation and experimental verification in the use of tailor-welded blanks in the multi-stage stamping process. 316
H.M. Jiang, S.H. Li, H. Wu, X.P. Chen

Numerical simulation and experimental study on the multi-step upsetting of a thick and wide flange on the end of a pipe 321
X.L. Hu, Z.R. Wang

Studies on the friction and lubrication characteristics in the sheet steel drawing process 328
H.Y. Gong, Z.L. Lou, Z.L. Zhang

Graphical methods of representing the stress components on different inclined planes at one point 334
Z.B. He, Z.R. Wang

Sheet bulging experiment with a viscous pressure-carrying medium 340
X.Y. Wang, J.C. Xia, G.A. Hu, Z.J. Wang, Z.R. Wang

Typical stress states of tube hydroforming and their distribution on the yield ellipse. 345
H.Y. Li, X.S. Wang, S.J. Yuan, Q.B. Miao, Z.R. Wang

Finite element simulation of the electromagnetic piercing of sheet metal. 350
X. Zhang, Z.R. Wang, F.M. Song, L.Z. Yu, X. Lu

Dimensional errors of cold formed components using FE simulation 355
H. Long

Experimental study and numerical simulation of the pressure distribution on the die surface during upsetting 367
X.L. Hu, J.T. Hai, W.M. Chen

A study of tube electromagnetic forming 372
F.M. Song, X. Zhang, Z.R. Wang, L.Z. Yu

Author Index 376
Subject Index 378